Egor Beliaev

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Located in GMT+2 time zone, work in the New York (EST) & partially San Francisco (PST) time zones

Hands-On Machine Learning Research and Engineering Lead

- 8 years of hands-on experience in Machine Learning, Deep Learning, Computer Vision, GANs with keen interest in visually appealing products that have a "wow" effect in the field of Generative AI, generation of new image and video content, augmented reality
- Led teams of up to 5 in Research and Engineering at Let'sEnhance, Alias and ApexQubit for 4 years for US-based startups
- Launched Alias's mobile BeFake app which is live on AppStore/Google Play and leverages Stable Diffusion to experiment with artistic styles and free generation from user photos
- Developed super resolution neural networks for Let'sEnhance photo products which served 2M B2C users on the platform and dozens of B2B customers processing millions images per month - Mixtiles, Chatbooks, Printiki, etc
- Architected and developed early-stage application similar to Snapchat/TikTok, which changes faces, heads, hair, skin and other human attributes for the US market
- Co-developed GenAI biotech drug discovery platform prototype for a Silicon Valley based startup

SKILLS

Leadership	**Mentorship**	**Project Planning & Product Research**	**Generative AI**	**AI & Research**	**Technical Skills**
Leading Teams of up to 5	Onboarding Junior Engineers	MVP Architecture and Development, Product Prototyping	GANs, Stylegan, Img2img Models, AR	Deep Learning, Neural Networks	Python, Pytest, Pylint
Cross-Team Collaboration	Non-tech Audience Communication and Training	Tools and Documentation	Stable Diffusion	Machine Learning	Pytorch, Tensorflow, Keras, ONNX, TensorRT, Deployment
1:1s, Internal Communications	Training Research Engineers & Defining Career Roadmaps	Architecture Development	Deepfake, Faces, Stylegan, Head Reenactment, Cloth Fitting	Computer Vision	OpenCV, Pillow, Numpy, Scipy, Sklearn
Interview Process Planning & Interviews	AI Subject Matter Expertise	Code Reviews	Automatic1111, Diffusers	Research and Development, initial research, Off-the-shelf vs Deep Research	Linux, Docker, Backend
External Communications & Presentations	Collaborative Coding, Pair Programming	Asana, Jira, Kanban, Notion	Image Restoration, Super Resolution	Data Pipelines, Internal Tools, Collection, Labeling, Human-in-the-Loop	GCP, AWS, Clouds, Autoscaling

EXPERIENCE

Stealth Startup - February 2024 - now
Founding Machine Learning Research Engineer

US-based stealth startup founded by experienced founder with Series-B exit.
Have NCA in LLMs for code generation.

- **Co-developed microservice architecture for unit test generation using LLMs**

Tech Stack: Python, Pytorch, ONNX, Langchain, OpenAI, Faiss, Chroma, Qdrant, sentence transformers, llama.cpp, Docker, GCP
Time Zone: CEST, PST, remote

Self-employed - October 2023 - now
Services Pitch Deck

Providing ML Research and Infrastructure development services together with partner as a head of development team.

- **Leading R&D** for stealth client from gaming industry **on virtual try-on** using diffusion models for individual style and garment recommendation

Tech Stack: Python, Pytorch, Tensorflow/Keras, NVidia Triton, ONNX, TRT, Langchain, OpenAI, OpenCV, Diffusers, Compel, Controlnet-aux, Clip/Blip image2text, Automatic1111 (sd-webui), PostgreSQL, Docker, GCP, AWS
Time Zone: PST, EST, remote

Alias Technologies / befakeai.com - May 2022 - September 2023
Senior Machine Learning Engineer (functional Machine Learning Research Lead)

Alias is a $3M seed stage startup from Nashville, TN with 19 team members, cofounded by the former CEO of Machine Zone, Kristen Garcia Dumont. Machine Learning Research team of 5 based in US & Europe

- **Launched "BeFake" app within 60 days**
  - Helped to lead a team of 5-6 ML engineers, defining priorities in various areas
  - GenAI Stable Diffusion image processing app, which offers multiple functions including changing the style and perceived location of a user's image.
  - Defined project ownership and aligned business and product priorities to achieve high-level deliverables:
    - ML algorithm and ML backend processing speed improvement (increasing speed from minutes to seconds)
    - Prototyped and implemented core product capabilities - styles, LoRAs and Text Inversion extensions for Diffusion models, inpainting, and face processing
    - Contributed to the scaling and improvement of the app, enhancing output quality in terms of realism, colors, detail, artifacts, and face processing

- **Architected GenAI stealth identity change application Alias app from the ground up**
  - Based on face swap, hair and face shape changing models, skin recoloring, voice changing, etc. Closed Beta released: 500 users and investors
  - Created Machine Learning backend for it in Python
  - Worked on enhancing SOTA in face swap/deepfake technologies during 9 months
  - Led AI development team of 4 ML engineers

- **Researched latent video diffusion models (2 months during Spring 2023):**
  - Tune-A-Video, Text2Video-Zero, FateZero and others to create video generation products, demos were created for investors

- **Led a team of 4 ML engineers.**
  - Defined requirements, wrote and assigned Asana tickets, decomposition of deliverable into tasks, MVPs and research process optimization, code review, contribution, onboarding, 1-on-1s, management communication, cross-team communication, non-tech employee training and supervision, writing tests and internal tools

Tech Stack: Python, Pytorch, Tensorflow/Keras, ONNX, TRT, OpenCV, Diffusers, Compel, Controlnet-aux, Clip/Blip image2text, Automatic1111 (sd-webui), Docker, AWS
Time Zone: PST, remote

LetsEnhance.io / Claid.ai - December 2018 - August 2022
Senior Machine Learning Engineer (functional Machine Learning Research Lead)

Let'sEnhance is a $3M seed stage deep-tech company with $6.3M revenue that builds next-gen AI photo management solutions for marketplaces. Let'sEnhance has 20+ staff with 3 ML team members

- **Led R&D team for 2 years**
  - Led a team of 3-5 people (3 ML engineers including myself and up to 2 Data engineers/SWE)
  - Research process planning and optimization, hypotheses tracking and summarizing, resource optimization and internal MVPs and demos: video super resolution, frame interpolation, 3d object reconstruction, image generation, image quality assessment
  - Communication, product case research and brainstorms together with the Head of Product and product team, making research & development roadmaps. Communication with management, cross-team communication, external communication with experts & VCs, leading information calls
  - Determining and delivering project objectives, feature planning, technical project ownership, full feature ownership, Jira ticket creation and filling
  - Backend engineering, transition from monolithic to microservices architecture, writing documentation, code review, writing tests and internal tools
  - ML colleague training, training SWE/data engineers to work with deployed neural networks, helping hire new team members, designing interview flow and questions, performing tech and introductory interviews

- **Created neural networks and ML backend for Photo 2.0 and Smart Enhance products**
  - Created super resolution, image restoration and supplementary neural networks which Photo 2.0 and Smart Enhance products (LE's super resolution main networks which served 2M B2C users on the platform and dozens of B2B customers processing millions images per month - Mixtiles, Chatbooks, Printiki, etc)
  - Contributed around 80% of ML backend, Researched and implemented the transition of a backend to Nvidia Triton inference server in the period when the documentation for it was absent
  - Defined objectives, Supervised new team members on product improvements & new features

Tech Stack: Python, OpenCV, Tensorflow/Keras, Pytorch, NVidia Triton, ONNX, TRT, Docker, GCP, AWS
Time Zone: GMT+2, remote/onsite

ApexQubit - July 2020 - May 2021
Machine Learning Research Lead

ApexQubit is a biotechnology company from Berkeley, CA that is harnessing frontier technologies for discovery of new medicines and better health for humanity. Privately funded, team of 15, ML team of 5

- Market research, communication with VCs, scientists, subject matter experts, mentors to determine market needs and improve domain knowledge, external scientific collaboration
- Product planning and development (platform for estimation of biochemical experiments)
- Cross-team collaboration including non-technical scientists, interviewing, colleague training, machine learning development, machine learning research - paper replication, model research and training
- Experiments planning, scalable cloud backend development and scalable experiments in the cloud
- Constructing and training deep learning models for protein-ligand affinity prediction: replication of 3D CNN models (DeepAtom), models with custom molecular features (OnionNet)
- Investigation of Graph CNNs like Dynamic Graph CNN for point cloud data trying to predict binding affinity, modifying and training generative like GENTRL with reinforcement learning objective for molecule generation, investigating Graph Convolutional Policy Networks
- Processed biochemical data (PDB, MOL2, SMILES data), usage of RDkit, OpenBabel, Biopython
- Experiments with Autodock Vina and Schrodinger automated pipelines for docking
- Backend for docking using AWS autoscaling group with concurrent writing requests to the database

Tech Stack: Python, Tensorflow/Keras, Pytorch, PostgreSQL, AWS
Time Zone: PST/flexible (people in the U.S., Beijing and Europe - all time zones), remote

Clikque Technology - June 2017 - September 2018
Director of Data Science (functional Head of Data Science)

Clikque was a Santa Monica, CA startup that started as a social suggestion application that used proprietary algorithms to automatically suggest friends or colleagues that you know, to help solve any of life's daily needs, all based just on the content of the question being asked. Co-founded by former Oracle's Global Strategic Technology & Strategic Applications Representative on High-Tech & Entertainment. Obtained two beta enterprise customers and 10K users of beta product. Later pivoted to Enterprise SaaS company that personalized search using (AI) techniques.

Was sold to AI search competitor. Advisory Board of Entertainment Industry leaders included C-level executives from HBO, NBA, and Grammys. Seed funding, team of 10, Data Science team of 1

- Developed NLP vector/keyword search engine, architected and rebuilt ML backend from scratch using Python 3, Tensorflow, Gensim, Spacy, Nltk, MySQL. Beta product released
- Created an internal tool for automatic matching of social profiles which compared faces on photos, names and other social network fields
- Co-developed MVP for SaaS product using Elasticsearch and proprietary vector/keyword engine
- Did a pitch deck for pivoted SaaS product, interaction with incubators, helped with fundraising pitches within Ukraine

Tech Stack: Python 2/3, Tensorflow, Gensim, Nltk, Spacy, Word2vec/glove Embeddings, MySQL, Elasticsearch
Time Zone: PST, remote

VuPad - September 2016 - April 2017
Machine Learning Research Intern

LA startup co-founded by Forbes Next 1000, MIT Technology Review Innovators Under 35 founder Masaki Nakada.

- Human segmentation, robust human pose estimation, automated parsing and color data extraction from social data images
- OpenCV + DL frameworks(Caffe) solution for human figure segmentation, human pose estimation
- Developed C++/Python OpenCV solutions for parsing images from social networks aimed to extract people/cloth color data

Tech Stack: Python, C++(g++), Caffe, OpenCV
Time Zone: PST, remote

Taras Shevchenko National University of Kyiv - January 2016 - June 2016
Master's Student - Research and Thesis on General State-Space Models

The university is recognized as Ukraine's most prestigious university, and is the largest national higher education institution in the country. It is ranked as the best university in Ukraine in many ranking lists.

- Researched structures, analogous to Hidden Markov Models for continuous-valued data (General State-Space models) as machine learning models to predict continuous processes
- Applied models for multiple use cases, including predicting stock prices on sample data

Tech Stack: R, TeX
Time Zone: GMT+2, onsite

EDUCATION

Taras Shevchenko National University of Kyiv - September 2010 - June 2016
Bachelor of Mathematics - Mathematics (Geometry)
Master of Mathematics - Mathematics (Actuarial and Financial Mathematics, Statistics)
Considered to be honors degree for Masters (92/100)

Tech Stack: Wolfram Mathematica, Matlab, Maple, C++, R (but please don't ask me to plot in ggplot2), TeX
Time Zone: GMT+2, onsite

INTERESTS

- **Paintings** - I'm subscribed to numerous art channels and enjoy browsing paintings from various epochs and genres. I have a personal fondness for classic works by Caravaggio, Bosch, Bruegel, and their followers. I'm also drawn to 19th-century academism, with artists such as William-Adolphe Bouguereau, John William Goddard, John William Waterhouse, Henryk Siemiradzki, Wilhelm Kotarbinski. Also to note Theodor Kittelsen and Gustave Dore. Among surrealists, I admire the works of Rene Magritte and contemporary sci-fi artists. However, Dali and Frida Kahlo don't resonate with me as much. Occasionally, I find the dark surrealist art in the style of Zdislav Beksinski and H.R. Giger profoundly captivating

- **Books** - Emigrants and their literature like Sergei Dovlatov, Joseph Brodsky, Nadezhda Teffi - but I don’t have as much time to read as I would like, but these book are very culturally relevant for me
- **Hiking** - I love to hike in mountains that have huge forests and cold mountain lakes
- **Mentorship** - I really enjoy mentoring and mentor various software engineers across the world